DOCUMENT RESUME

ED 138 284 IR 004 713

AUTHOR Hicks, Bruce; Jaycox, Kathy
TITLE Elders, Students and Computers--A New Team. Illinois Series on Educational Application of Computers. Number 7.
PUB DATE Aug 76
NOTE 15p.; For related documents see IR 004 714 and IR 004 723

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *College Students; *Computer Oriented Programs; Computers; Educational Resources; Guidelines; *High School Students; *Older Adults; Outreach Programs; Use Studies

ABSTRACT

Computer services can be developed to aid and enrich the lives of elders, just as computers already enrich the educational resources for students. Joint exploration of computer uses for elders, by students and elders, can be successful. High school and college students each have particular contributions to make. This paper discusses prototype studies in this area and presents guidelines for future programs. (DAG)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED138284

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Number 7

The Illinois Series on Educational Applications of Computers

ELDERS, STUDENTS AND COMPUTERS - A NEW TEAM

Bruce Hicks and Kathy Jaycox

August 1976

PERMISSION TO REPRODUCE THIS COPYRIGHTED MATERIAL HAS BEEN GRANTED BY
Bruce Hicks
TO ERIC AND ORGANIZATIONS OPERATING UNDER AGREEMENTS WITH THE NATIONAL INSTITUTE OF EDUCATION. FURTHER REPRODUCTION OUTSIDE THE ERIC SYSTEM REQUIRES PERMISSION OF THE COPYRIGHT OWNER.

College of Education
Department of Secondary Education
University of Illinois
Urbana, Illinois

© Bruce Hicks (1976)

IR004 713

ISEAC Number 7 & 8

Preface

Many subjects treated at the college level, and the corresponding study materials, are also appropriate for work in secondary schools. The purposes may be very much the same at the two levels. These similarities characterize participation in the new area of activity, computer uses for elders; and here the purposes for the high school and college student are the same: to broaden the social and technical skills and the perspectives of students through their participation with elders in the development of computer uses for elders (CUE).

Computer uses for elders in Illinois has thus far been developed primarily through the efforts of students at the University of Illinois and their colleagues among the elders (senior citizens). A few high school students have, however, already made valuable contributions to this new team of "elders, students and computers."

Elders participate in CUE development because a) "they are part of the problem"; b) CUE can serve many and serve them well only if elders help "spread the word"; c) some elders will find CUE to be exactly what they are very interested in doing (and there are many types of CUE activity, just as there are many types of educational applications of computers).

High school students have at least two roles that are essential in the successful development of computer uses for elders. The first of these is a general "humanistic" role: the students discover a relationship with elders (who - like them - often are isolated, as individuals or as a group); and in addition, it is hoped, they carry the effect of that relationship back to their own families, where they can serve as a bridge between generations. The second role is more specialized, involving the students' capabilities in developing and using humanized computer programs. (See Reference 2.)

Our discussion of computer uses for elders appears in two ISEAC papers under the generic title, "Elders, Students and Computers:" ISEAC Number 7 ("A New Team") and ISEAC Number 8 ("Background Information").

We hope that these two papers, though based on university-community experience, will suggest to teachers and students in the schools many of the opportunities for programs of study and participation in this new field, computer uses for elders.

Bruce Hicks
ISEAC EDITOR

ISEAC Number 7

Elders, Students and Computers - A New Team

Bruce Hicks and Kathy Jaycox

Table of Contents

	Page
Summary	
1. Introduction	1 - 2
2. Three Semesters' Experience	3 - 6
3. Guidelines for Further Development of CUE	5 - 8
4. Acknowledgments	8
5. References	9
Appendix. Computer Programs for CUE	10

SUMMARY

Computers already serve many students in schools and colleges. Computer services can be developed that will also aid and enrich the lives of elders, who are one of the neglected minorities in society.

A powerful means of developing these computer uses for elders (CUE) is through the work of a new type of team consisting of elders, students and computers. Highschool students have an especially important part to play on these teams.

In this paper we review our prototype studies of computer uses for elders and give guidelines, based on our experience, for future exploration and development of computer uses for elders. In a second paper (ISEAC Number 8) we discuss some of the factors affecting successful computer uses for elders and other background information for CUE studies.

1. Introduction

It is well-known that computers provide large-scale services to government, business, industry and technology. Computers can also be used effectively for direct service to people: in teaching, recreation and for client and consumer information. Facilities for supplying these services are becoming cheaper and more widely available.

Elders* clearly constitute a large potential clientele for these services. The elders face certain problems unique to them as a group but also possess great capacities as individuals for life-long, creative living and learning. Computer services can enrich the lives of the majority of elders, and serve all of them, directly or indirectly, just as computers already enrich the educational resources for students in more than one-half of the high schools and in many of the colleges.

Thus, it makes sense for the young people to "share the benefit of their wisdom" with the elders--and vice-versa. **The young and the old live too much outside the mainstream of society, in terms of the degree of participation, control and responsibility that they are given. Both groups can gain through developing greater participation in societal activities--in this case, through developing computer uses for elders (CUE). These uses of computers for elders are one form of computer outreach discussed in Reference 1.

What can the young offer the elders? The computer is the natural servant and tool of the young. They approach it with the intuitive feeling that its purpose should be and can be to <u>serve them</u>,*** not enslave them; and many of them soon realize that if it does not serve their educational or other needs, the computer services should be improved <u>or</u> should not be used in place of human-based services and interactions. These understandings are an important part of the computer literacy that in principle should be part of the equipment of all citizens--students, elders and other adults. The students can share with the elders this computer literacy; and in particular, a few of the students acting as consultants (see References 2 and 3) can be especially helpful to CUE by providing their programming skills.

What can the elders offer the young? For the student consultants, the interaction with elders provides a valuable experience with real educational and other developmental problems for real clients. More important, for <u>all</u> participating students the interaction is an opportunity to establish inter-generational ties. The understanding gained in this way may even be extended beyond the immediate circumstances and affect the student's families, strengthening such ties and reducing the "generation gap."

---

*We have adopted the term "elders" used by the national organization of older and younger people, the Gray Panthers, in place of the more familiar term, "senior citizens."

**We note that participation of elders in high school educational activities is not new. Elders and students have, for example, worked together in recording oral history and in the outreach activities of the university students. (See discussion of Volunteer Illini Projects in ISEAC Number 8.)

*** Some elders approach the computer in the same spirit!

It is important that the young learn early, as part of their computer literacy (which they can share with their parents), the need to humanize and control the computer. They must learn that this is their life-long responsibility and that the humanization and control are indeed possible because these are the problems of people, not of a technology that runs amok all by itself. One way for them to help humanize computers and understand this important facet of computer literacy is for them to work with elders in developing the computer uses for elders, in education, recreation and consumer and client services. Said in another way, one type of "powerlessness and persuasive alienation from society" of old and young--in fact of people of all ages--is derived from large scale computer use that is controlled, often unwisely, by others, thereby resulting in meaningless or negative services to individuals, rather than enrichment and positive services. To the extent that CUE is successful, through the joint efforts of young and old, this type of powerlessness and alienation will be reduced.

What is needed for progressive development of CUE? Vision of a richer future, a vision held by young and old and their advisors, is clearly a necessary ingredient. To this must be added intimate understanding of and sensitivity toward the problems of elders as a group, and in particular, of individual elders. Computer uses must be tailored to individuals, not to a mythical average elder! And of course there must be some degree of expertise in the potential of and the limitations of computer technology for the use of elders. This vision and expertise must come to be shared by a greater variety of people, and we stress here the sharing by elders and students in high school and college.

With these ingredients, joint exploration of computer uses for elders, by students and elders, can be successful and, indeed, has already been successful in our prototype studies.

In this paper we shall discuss both past work and guidelines for the future. In Section 2 we describe the work of student teams with elders during three semesters using three different computer systems.* On the basis of this experience and the background information in ISEAC Number 8 we have written the guidelines given in Section 3 for further development of computer uses for elders.

We acknowledge in Section 4 the contributions in our work of many individuals.

We hope that the wide range of challenges and satisfactions apparent in our work with computer uses for elders will encourage others in the schools and elsewhere also to work on the development of CUE, in ways that fit their resources and the needs of elders and students in their communities.

---

*PLATO IV, a large computer-based education system, and PLORTS and the DEC 10, both time-sharing computer systems.

2. Three Semesters' Experience

Initial development of the Computer Uses for Elders Project has been undertaken by three groups of graduate and undergraduate students (and a few high school students) working respectively in Fall 1974, Fall 1975, and Spring 1976. Their work (see References 4, 5 and 3, respectively), summarized in the following pages, has provided only a beginning. Nevertheless, it reveals significant findings, some expected and some unexpected, which will have to be taken into account in any future development of computer uses for elders.

The goals toward which these groups worked (modified from year to year, on the basis of each group's results) included:

1. Bringing awareness and understanding of computers to a sampling of senior citizens in Champaign County.

2. Involving senior citizens in using, choosing, developing and evaluating computer-based programs and materials.

3. Presenting these lessons at locations accessible to a wide variety of elders and in relaxed, enjoyable, recreational settings.

The activities derived from these goals may be summarized as follows:

1. Using the programs with the elders in order to get their advice and comments, see their reactions and understand their problems.

2. Finding a wide variety of elders and choosing ones to work with the students at the times and sites available.*

3. Choosing existing computer-based materials and developing new ones, in cooperation with the elders.

4. Evaluating the materials, the sites and the participation of all involved in the CUE project: staff, students and elders.

In Fall, 1974, Joe Kuhn, Rosanne Francis, and Ray Murphy (Reference 4) initiated the CUE project with this goal: "explore the possibilities of adapting a computerized instructional system to the world of the senior citizen." Because theirs was a pioneer effort, these students faced the dual difficulties of finding a population of elders willing to cooperate in the program and of choosing from a computer repertoire which included no lessons written specifically for use by elders. Though they recognized that numerous existing lessons of "universal" appeal (e.g., games such as checkers) would be as attractive to elders as to anyone else, these students also realized that adaptation of the system should involve provision of some programs written specifically for an audience of elders.

---

*In the future we should work toward the situation in which the elders choose the students who work with them as well as our choosing the elders!

The authors contacted six senior citizens with whom they arranged a series of meetings on the University of Illinois campus. The elders involved were exceptionally active for their age; all were retired, most were college graduates. They participated in many activities, including volunteer work, which made it difficult for them to fit the CUE Project into their schedules. Also contributing to the scheduling difficulty was the fact that these volunteers had to come to campus to use the terminals--rather than to have the terminals brought to them. Nevertheless, arrangements were made, and the series of campus meetings was scheduled, each session divided into three parts. In the introductory third of each session, the elders were given time to become familiar with the terminals, the sign-on procedure, and the major goals of the project. The second part of the meetings included actually working through programs or "lessons" on the PLATO and the PLORTS (time-sharing) systems, both a specific set of lessons reviewed by all participants, and other lessons examined by individuals according to their special interests. The final part of each session was an evaluation period, in which staff and participants were able to comment on the lessons, on interaction between users and computer, and on suggestions for future projects.

As a result of their findings, Kuhn, Francis, and Murphy were able to make several suggestions. Three of these (planning lessons specifically directed to elders, involving the elders in project organization, and broadening the range of elderly population involved) became objectives of the second and third student groups. Summaries of their work follow.

In Fall, 1975, Jeff Jacob, Ken Johnson, and Eleanor McBride (Reference 5) undertook the second phase of the development of computer uses for elders. The DEC 10 computer and its terminals were used in this phase. From the very beginning, these authors asked elders to be involved in the planning. They invited two of the participating elders from the 1974 efforts to share ideas with them in a September "brainstorming" session at which they formulated objectives. As a result of that and subsequent meetings, the group directed its efforts toward the production of two new programs: "Food for Thought" (an elaboration of the conventional "Dial-a-Prayer") and a Current Events calendar (see Appendix). Specifically, three purposes were identified for these computer programs: 1) to perform a thought-provoking exercise through the use of mood-determining questions and corresponding quotations tailored to each emotional level; 2) to inform the elderly of all related community events, consolidating this information into one source; and 3) to use the computer to reach those sometimes thought of as too old to learn.

Though the group wrote their programs with a view toward exploiting the portability of computer terminals in future work, bringing such terminals to a community center could not be accomplished in this semester. The reason is worth noting. Use of a portable terminal for time-sharing necessitates the use of a telephone connection. Because the Champaign Senior Citizens' Drop-In Center (the intended site of a group meeting) has only a single telephone line, that line could not be monopolized for the extended period which a computer interaction demonstration would involve. Consequently, while a few elders were transported to the University of Illinois campus to use a computer terminal, the hoped-for opportunity of reaching a wide range of elders was lost.

Completion of this second effort made valuable contributions, nonetheless, to the development of computer uses for elders--not only by involving elders in the planning stages and by developing new programs aimed specifically at an audience of elders, but also by directing attention to the need for developing diagnostic and evaluative questionnaires. The authors had noted how future efforts might become more productive if future authors of computer programs were better informed about the individual elders with whom they were working. (Has he/she had prior computer experience? Clerical experience? What are his/her interests? etc.)

Building from the experiences and suggestions of the 1975 group, the third group of authors established as their primary goal "reaching a broader range of users." In Spring, 1976, Tom Brown, Valerie DeSalvo, and Kathy Jaycox (Reference 3) made arrangements with the Frances Nelson Health Center (Champaign) to visit the Center on several occasions with a portable terminal connected by telephone line to the DEC 10 Computer. Because the Center has multiple telephone lines, monopolizing one line for an hour or more was not an inconvenience. Several elders who met for a weekly lip-reading class at the Center were participants, and they differed from the participants of previous years in educational and socioeconomic backgrounds, as well as in level of involvement in other activities. Despite these differences, their interest in and enthusiasm for the project was just as great as--if not greater than--that of their predecessors, partly because they considered the regularly scheduled meeting as a focal point of their week, instead of being pressured to "squeeze in" this activity.

The work of this third student group was in some ways similar to that of the second group because they used programs written especially for elders (by expanding "Food for Thought" and instituting a program about nutrition and meal-planning, see Appendix) and administered questionnaires both before and after the elders' experiences with the computer. Unique to the 1976 efforts, though, was the involvement of younger people in the CUE Project. Under the auspices of the volunteer program VIA (Volunteers Interacting with the Aged), two students from the University of Illinois High School--Chris DeBrunner and Kevin Northrup--contributed their programming skills to the project.

Unfortunately, the contact between the high school students and the elders was minimal in this first semester of mutual involvement because of scheduling conflicts between students' class time and the elders' meeting time. The contributions of the young people were limited to programming, but those contributions were significant. The "Food for Thought" program was greatly expanded, rewritten in a more universal available language (from PASCAL to BASIC), and modified to provide random access to the data bank. The dedication and ability reflected by one of the students, in particular, proved very encouraging to the hope of involving more students in future projects.

Apart from what was learned about the involvement of high school students, the greatest lesson learned from this third semester's experience concerned the advantages and disadvantages of working with a portable terminal. Instead of having several terminals for the elders to use simultaneously (as was true in previous semesters), this group had only one--and it printed on paper rather

than on a screen. This did pose several problems concerning use of the keyboard and legibility of printouts (see Section 3), but it also revealed a surprising "esprit de corps" among the elders, who made each session a group effort. Mutual assistance (for example, in locating letters on the keyboard) was the order of the day; yet it was accompanied by a recognition of each person's independence, as they took turns to do the actual typing. Both of the university students felt that the comfort and familiarity of the setting contributed significantly to the enthusiasm of these elders. This dimension of CUE will be one of the most interesting to pursue, and providing service as consultants in settings comfortable for the elders may well be an important role for high school students.

Despite the achievements of all three groups, much work remains to be done. In Section 3 of this paper are listed combined conclusions derived from all three group efforts and from other sources. Action has already been taken on some of them. The remainder provide good focal points around which future efforts in the computer uses for elders project can develop.

3. Guidelines for Further Development of CUE

Our studies since 1974 have suggested to us a number of guidelines for developing activities and achieving the goals set forth in Section 2. Five of the guidelines have been examined in detail (Reference 6). The studies and activities include the three semesters of the CUE Project, together with experience in planning and carrying out workshops and several other sources of information described in ISEAC Number 8. Further experience with computer uses for elders will doubtless lead to extensions or other modifications of these guidelines.

Participation

1. Find cadre elders early, who already "hear the beat," in the words of Maggie Kuhn, and spread their active participation and outlook to elders, remembering that these can participate in a variety of ways. Involve elders in the planning, both directly, through their suggestions, and indirectly, through a study of their responses to questionnaires, their comments, their difficulties, etc.

2. Continue demonstrations of CUE and CUE services not only to elders, but also to agency staff, faculty, students, and others, so as to achieve wider understanding of what CUE can do for each of these groups and to gain the benefits of constructive criticism from a variety of people most concerned with elders.

3. Place special emphasis on the contributions of two groups of young people: the high school students because of their potential ties to several generations and their computer elan, and college students (including those in volunteer service programs) to broaden their skills and understanding and to tap their several fields of expertness. Each group of students can make contributions to any of the aspects of CUE discussed in this paper.

4. In developing CUE in a way that is most useful to elders and is responsive to their needs and abilities and resources, also develop simultaneously the network of interpersonal and intergenerational relations among elders, students, faculty, agency staff, and community staff; and develop the training of these people that will support and, indeed, make possible satisfactory creative development of CUE.

5. Develop active concern on the part of agency staff and faculty to find where CUE can be fitted in naturally to their new or ongoing programs receiving federal or state support.

6. Identify areas of research needed to support the exploratory, developmental, and training activities involving students, elders, faculty, agency and community service people.

Computer Services

7. Make computer access available to as broad a range of elders as possible, especially by providing terminals in community centers or retirement homes, with the necessary added telephone lines.*

8. Use as much as possible inexpensive and readily available computer equipment and languages (like BASIC) that are widely available.

9. Develop mutual understanding, by elders and their co-workers, of the availability of computer services, of those (few at present) that can surely be made available at any given time and place and of those others that are more uncertain.

Development of CUE Program

10. Plan lessons directed to a specific audience of elders, but do not eliminate other programs. (Aging does not automatically reduce other interests.) Remember that elders, like people of any age, exhibit individual differences. Not all elders will be equally interested in all programs; provide choices.

11. Reduce the difficulties inherent in the poor typing skills of many elders by using a touch panel (on the PLATO System); by alphabetizing the keyboard; or by providing clerical assistance, letting elders dictate to a typist. (An especially good procedure is to ask another elder, who has good typing skills, to serve as typist.) Allow enough time for each user to become comfortable.

---

* The maxicalculator (see References 7 and 8 and new microcomputer systems (see Reference 1) can supply CUE without requiring a dedicated telephone line.

12. Carefully balance on-line and off-line materials, so that the computers are only used for what they can do better than other media and other educational and recreational tools.

13. Do responsive evaluation throughtout the Project, evaluation that requires the participation and often the leadership of the elders and students. Have some concretely stated objectives as part of the basis for the evaluation.

4. Acknowledgments

Many people have worked with us on the development of computer uses for elders. We should like to thank them here for their varied contributions.

Among the university students we want to recognize are Rosanne Francis and Eleanor McBride (Home Economics), Joe Kuhn (Psychology), Ray Murphy (Social Work and Volunteer Illini Projects), Jeff Jacob (Engineering), Ken Johnson (Secondary Education) and Valerie DeSalvo (Secondary Education).

Two students at University High School, Kevin Northrup and Chris De Brunner, have shown us how much high school students have to offer in the development of computer uses for elders. Their participation was suggested and facilitated by Ann Atkin (High School Volunteer Program for the Long Living) and Anton Lissy (University High School). Tom Brown, Director of the Frances Nelson Health Center, made it possible for us to work with a most exciting, responsive group of elders in the third semester. Our consulting assistant, Mark Pelczarski, has assisted all of us with advice about how to make the best use of the DEC 10.

Valarie Lamont (now with the Association of University Programs in Health Administration) helped us to plan the early stages and develop a long range view of the CUE project. And much of the inspiration for the whole project came from Maggie Kuhn, National Convenor of the Gray Panthers.

5. References

1. Hicks, Bruce, "Computer Outreach" (to be published in the Fall, 1976 issue of Computers and Society).

2. Hicks, Bruce and Keasler, Linda Crider, "Students: Where the Action Is!" ISEAC No. 3, August 1975.

3. DeSalvo, Valerie and Jaycox, Kathy Computer Uses for Elders: Spring 1976 Report for Secondary Education 317, University of Illinois.

4. Kuhn, Joe, Francis, Rosanne and Murphy, Ray, Computer Uses for Elders: Fall, 1974 Report for Secondary Education 317, University of Illinois.

5. Jacob, Jeff, Johnson, Ken and McBride, Eleanor, Computer Uses for Elders: Fall, 1975 Report for Secondary Education 317, University of Illinois.

6. Jaycox, Kathy, Suggestions for Implementing CUE Guidelines: Summer, 1976 Report for Secondary Education 459, University of Illinois.

7. Doring, Richard and Hicks, Bruce, Maxicalculators for the Whole School, ISEAC No. 5, April 1976.

8. Doring, Richard and Hicks, Bruce, A Detailed Comparison of Maxicalculators, ISEAC No. 6, April 1976.

Appendix. Computer Programs for CUE.

Listed below are descriptions of four programs which have been written in the BASIC language by U. of I. students specifically for use by elders.

Food for Thought

Comparable to the "Dial-a-Prayer" service, but not inherently religious, the "Food for Thought" program asks whether the user is happy or sad, then proceeds to offer a message (quotations are from literature and philosophy as well as from the Bible) related to one of several general reasons for the person's state of mind (e.g., health, money, family). Provision is made for recording the answers, both to discover what people are "willing to admit" to a computer, and also to help program authors formulate "mood categories" in the future.

Current Events Calendar

This provided a monthly listing of scheduled entertainment in town (Champaign-Urbana) and on the U. of I. campus, as well as data thought to appeal to elders, such as special sales and discounts for senior citizens. The format was simply a listing giving date, location, and a brief description of the event (really a data file rather than a program). Suggested improvements in the program include broadening the scope of events (e.g., to include football games), indicating transportation available and cost of admission, indexing the data, and limiting presentation of the data to a weekly--rather than a monthly agenda.

Recipe

This program is in two parts. The first section provides nutrition information, including the recommended daily requirements of the four basic food groups. The second section provides a variety of recipes for main dishes that are inexpensive and easy to prepare. For each of the recipes (which serve one or two, because elders frequently live alone or in couples), the program indicates which of the recommended daily requirements it meets. Suggested improvements in the program include expanding the recipe file, and allowing users to input recipes they would like to share.

Folk

The purpose of this program is to collect bits of folklore from local residents and provide data and comments for a historical picture of the area from the viewpoint of its residents. Eight categories of topics are offered (e.g., stories of people & places; riddles, jokes, & proverbs; music). Samples of folklore from Adams County, Illinois and of folk music from various parts of America are provided, then elders are asked to contribute items from their own experience. (Depending upon the length of their entries, the data may either be immediately typed into the computer, or it may be recorded by a student worker for later referencing via computer.)

BH:ks
SE-938